



SAN BERNARDINO MICROWAVE SOCIETY, Incorporated

FOUNDED IN 1955

A NON-PROFIT AMATEUR TECHNICAL ORGANIZATION DEDICATED
TO THE ADVANCEMENT OF COMMUNICATIONS ABOVE 1000 MC.

W6IFE Newsletter December 2011 Edition

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At the **December 1, 2011 SBMS meeting** Brian, AF6NA will talk about "The Evolution of Parabolic and Offset Reflector Geometry". The SBMS meets at the American Legion Hall 1024 Main Street (south of the 91 freeway) in Corona, CA at 1900 hours local time on the first Thursday of each month.

Last meeting... Mel, WA6JBD gave a talk on his 30w 0.5 dBNF 4 foot dish rig that he uses roving during the 10 GHz contests. He has heard his own echoes off the moon with it as well as making mobile FM contacts with a lower powered head held to his car roof with magnets and an Omni-slotted waveguide feed. It takes him 40 to 60 minutes to set up the dish and rig after arriving on site. The main part of the rig stays in the back of the car connecting to the dish with a 12 foot run of flex guide. Depending upon the site he runs off a generator, big extension cord or batteries (12 v, 24v and -12 v). The 30w TWT takes 1mw of drive and lots of 24vdc. His success is having one big tripod weighted down with 3 35 pound bags of sand. If he is in an area where there aren't any beacons to check the rig out on receive he used ground noise to see if it is working as normal. Liaison comes from of 440 radios an HF rig and cell phones. Brian, AF6NA gave a short introduction to a future talk by Probst HB9AZN on their record breaking 10 GHz contact in the Atlantic Ocean. Brian talked about the "Evaporation ducts over the Sea" related to the new record from an article in the October QST. Dennis, W6DQ brought the big projection screen to the meeting so it can be installed sometime in the future. It was approved that a Harris 3w amplifier 10 GHz be purchased for the Heaps beacon in replacement of the 10 w unit that has failed. Senior member George Tillitson, K6MBL has a stroke and is paralyzed on the right side and cannot speak. A card was sent around for the members present to sign. 20 people present.

Scheduling:

December 10 SBMS Christmas Party at Dennis' house (W6DQ) starting at 12 noon. Opportunity prize drawing.

January 5, 2012 TBD

January 21-23 ARRL January VHF Sweepstakes

June 9-10 ARRL June VHF QSO Party

August 4-5 ARRL August UHF Contest

August 18-19 ARRL 10 GHz and Up contest part 1

August 16-19, 2012 The 15th International EME Conference in Cambridge, England.

September 8-10 ARRL September VHF QSO Party

September 15-16 ARRL 10 GHz and Up Contest part 2

Wants and Gots for sale.

For Sale: 30w 1296 MHz PA kit \$50 + \$5 for US shipping Chris Shoaff, N9RIN cshoaff@yahoo.com

For Sale: 10 GHz slotted waveguide antennas \$70 kit, \$95 assembled plus shipping Dan W6DFW W6DFW@apex-scientific.com

Free: 3 HP8690A sweep oscillators- no plug-ins free. . 4 turret microscope \$25; Carl Zeiss surveyors level \$50; TA33jr triband beam \$50 Bill WA6QYR bburns@ridgenet.net

For Sale- lots of microwave stuff. Let me know what you need. John KJ6HZ 951-288-1207.

Activity reports— Dick, WB6DNX has a 3w 10 GHz amplifier; Chuck, WA6EXV reported that a suspected lightning strike took out the Heaps 10 GHz beacon power amplifier and he has his Flex1500 radio working; Bill WA6QYR visited K6JEY's house to watch his EME work on the side walk station on two meters; Ed, W6OYJ is working on his 24 GHz endway rig and is trying to get the San Diego Navy labs ducting software; Walt gave a demonstration of his radiometer that had "hands-on-blessing" problems; Tom, WB6UZZ repaired his rubidium source; Dave, WA6CGR worked on someones 8 GHz receiver; Pat, N6RMJ worked with spectran software; Rein, W6SZ did EME at K6JEY's, got a 3w amplifier for 10 GHz, and had a WSJT bounce contact with AF6NA; Jeff, KN6VR was in Utah hunting; Dan, W6DFW found changing to bronze waveguide will save him milling tools so price of antennas can drop; Dick, WB6JDH has a new scope and went to PACIFICON; Dennis had some HCF USB power meters (100KHz-500MHz to auction (WB6DNX and W6IEE won them for \$50)); Tizsa had cookies and milk to sell; Mel, WA6JBD had rig problems before heading out on the contest and made a 900 MHz slide phase shifter to help with a rig problem; Jason, W6IEE worked on some Los; Mike WA6ILQ did a little microwave work; Brian, AF6NA was at Doug's for EME; Chris, N9RIN did some 10 GHz pcb board work; METS ATV had K6BBN and Robbie from Orange; ATN ATV had John KE6BXT and KN6CV.

Trip to Owens Valley Radio Observatory

On 11 November Chuck, WA6EXV and Bill, WA6QYR ventured to the Owens Valley Radio Observatory with Bill's trailer mounted 4 ft dish in tow. We met Doug, K6JEY and Dr. Hodge at OVRO to provide science program for a group of 15 Los Angeles Private School "A" students. Bill's dish was used to collect sun noise and provide a strip chart recording of the noise as the dish was moved across the sun. Some of the students got to put their hand in front of the feed thus making the chart recorder pen wiggle. We had made several chart recorder plots of the sun noise as the dish was moved. These were given to the students for a memory of the trip to OVRO. Several other short demonstrations were given to the students and their parents.





Another view of the students moving their hands in front of the feed while Dr. Hodge and Dr. Doug worked the recorder and dish position.



Dr. Doug is working to get his DB6NT receiver to function with the chart recorder. We finally resorted to Dr. Hodge lab resources where we got a couple of 10 GHz amplifiers to put in the line from the preamp. Just using a simple diode detector, we were able to drive the recorder and make sun noise plots. The students received a demonstration of how liquid nitrogen slows things down and makes them brittle and some discussions of radio wave movements in the universe. A Saturday trip to the snow above Big Pine was new to some of the students. It was hoped to have an optical star party Friday night, but clouds prevented this from happening. This trip to OVRO was SBMS in support of the Out Reach program of Cal Tech.

SBMS "V.P.'s View" – November 2011

CQ, SBMS de Brian, AF6NA ...

Well, we had fairly good participation in this year's ARRL 10 GHz and Up Contest, although a few SBMS contesters were missed. Several of the Northern CA guys came down to Southern Cal, where the action is. Brian Yee, W6BY came all the way to Signal Hill with Pat, N6RMJ the second weekend, Lars, AA6IW was on Frazier again, and Randy, KI6TWT, made his way down to So. Cal in September. I think the overall scores will be higher than last year, but that remains to be seen. I know my score went up from just a little over 5000 points on 38 contacts last year, to 40,000+ points on 156 contacts. Pat, N6RMJ and Brian Yee, W6BY were my partners the first weekend in the Central Valley. I was on Frazier and at Mt. Soledad the second weekend. Rein, W6SZ and I both logged about 14 contacts in 2 hours at Soledad the last Sunday. It was a great QTH and we enjoyed working together. My own operating skills came up a bit this year, sharpened by some good advice from veteran X-bander, Wayne, KH6WZ. He said I could drop the exchange of time in a QSO, noting correctly, that sometimes a 10 GHz QSO opportunity will only last for a few seconds. Thanks Wayne! I asked for contest recaps from SBMS members and here are some observations.

De Tony Long, KC6QHP:

"This weekend I finally added a 4th band to my contest log! I started working on my 79 GHz radios back in January or so. I built two radios and tried a contact across Lake Murray in San Diego with my dad KC6QHQ. Unfortunately, we could only make it 5 feet. I met up with Doug K6JEY and Helen KI6LQV on Signal Hill, and we made an across-the-parking-lot contact with tons of margin and then extended that to 2.1 km. I've still got work to do, but at least I managed to get two contacts in the log this year for my first time on 79 GHz. Saturday I worked for a couple hours from Mt. Soledad in San Diego and in a reversal of the usual configuration, talked to Ed W6OYJ and Art KC6UQH who were on Signal Hill. Sunday I managed to work quite a few stations from Signal Hill. I had many good QSOs on 10 and 24 GHz before packing up and going home where I then operated until 9 pm or so with the last of the contesters. You can always count on Pat N6RMJ and Glen KE6HPZ to be on the air until the very end.



Jason, W6IEE with loaner rig.

De Jason, W6IEE:

I might be new to Microwaving, but I've got a bit of contesting experience under my belt. Somewhere around I have a pin from a 1998 ARRL VHF contest, and somewhere else I have a certificate saying I placed first in the LA section for low power in some HF DX contest last fall. But Microwave contesting is

definitely different. Being out of and away from the shack is great, unless you forget something! I've always wanted an excuse (and directions!) to go to these fascinating mountaintops where all of the repeaters live. The trip up is interesting and the view is fantastic, but the best part is "multi-op team effort" with the other guys on the same hill. Sure, it's a competition, but what helps one, helps another. I think that's pretty darn cool! More impressive is the assistance and generosity offered by everyone in SBMS. I wouldn't have had all this fun without the loaner radio, thanks to Dave, WA6CGR! Thanks again to everyone who participated, especially everyone in my log. And an extra thanks to the guys who drove all over the state, and even out of it. I think I have more grid squares on 10 GHz in two weekends than I do over a dozen years on 6 meters! Thanks again, and 73, Jason W6IEE.

De Rein, W6SZ:

Hello All. Sunday ended up as a very nice experience. I guess one should experience the 10 GHz contest in such a way all the time. Activity, good position, strong signals, contacts, etc. The use of Brian's FM radio provided lots of exposure to the Cactus network for me and that will serve me in the future. It's is totally clear now to me that trying any form of random contact is a no, no during this event. Another eye-opener was the overall level of intensity by a great deal of the participants! As always, I pick up ideas. All in all, Sunday was very pleasant. Thanks so much Brian. And to Doug and Helen, thanks for the QSO's. Next now, I hope to be able to arrange conditions to do some real weak signal on 10 GHz using digital modes. 73, Rein, W6SZ.

De Brian, AF6NA - One final note, I'd like to extend thanks to Chip, N6CA, Mel, WA6JBD and Robin, WA6CDR for once again "going the distance" to Mt. Shasta and to Potosi. You guys provided many of us the longest QSOs of the contest!



Tizsa, KI6DBR suppling Bill, N6MN with cookies and milk at the November SBMS meeting. The cookies are always good that Social Secretary Tizsa provides to add that little spice to our meetings. Thanks Tizsa!

A future program in the works-

Vice President Brian, AF6NA has been communicating with Mssr. Pierre-Andre Probst, HB9AZN, the Swiss ham who led the 10 GHz world record team, who is preparing a talk on the evaporation ducting and how they used it to set the new record. Brian hopes Mssr. Probst can present this talk at the January or Feburary SBMS meeting. Pierre-Andre is aware of SBMS attempts for a 10 GHz California to Hawaii record shot. The use of “WSPR” digital mode is of interest to Pierra-Andre.



Mel, WA6JBD with his 4foot Andrews dish used when roving during the contests. The heavy duty tripod is further held down by three thirty five pound sand bags piled on the cross member that ties the three legs together on the bottom. The hand wheels control the azimuth and elevation position of the dish. There is a 12 foot run of flexible waveguide that connects the rig to the transmit-receive waveguide relay and preamp at the back of the dish. The transverter consists of a 35 watt 10 GHz TWT and its associated 24 volt input high voltage power supply, more preamps, an up/down converter and a sequencer. This rides in the back of Mels vehicle along with a generator/ set of three 12 volt batteries/ and long heavy duty extension cord depending up on the site they happen to be going to set up at. The “IF” radio is an FT-817 with a long set of control/coaxial cables that connect it to the transverter. This long cable allows Mel to work from the front seat or out at the dish. It takes Mel about 45 minutes to an hour to set up once at the site.



Dennis, W6DQ (right) talking with Chuck, WA6EXV, Dave, WA6CGR about the HCF USB powermeter RFPM002 specifications. Two of the units were auctioned off during the meeting.

The September “Military Microwave Digest” magazine had an article about the early days of the Army post at Fort Monmouth with Project Diana where a 24 dBg bedspring antenna from a SCR-271 radar was mounted upon a tower looking at the horizon. A highly modified transmitter put out 3KW at 111.5 MHz in 250 millisecond pulses. The receiver was modified to compensate for the Doppler of the moon. During the 40 minute window, the Fort Monmouth personnel looked at the echoes of the moon. This was the first EME operation that occurred January 10, 1946 at 11:58 am EST. Doctor Walter McAfee was the one who calculated the speed of the moon so that the Doppler could be entered in to the tuning of the receiver.

Your tidbit or article could be here. Contact Bill, WA6QYR bburns@ridgenet.net if you have something that might be of interest to fellow members.



Mel, WA6JBD Talking about his 35 w 10 GHz TWT and its power supply at the November SBMS meeting. The San Bernardino Microwave Society is a technical amateur radio club affiliated with the ARRL having a membership of over 90 amateurs from Hawaii and Alaska to the east coast and beyond. Dues are \$15 per year, which includes a badge and monthly newsletter. Your mail label indicates your call followed by when your dues are due. Dues can be sent to the treasurer as listed in the banner on the front page. If you have material you would like in the newsletter, please send it to Bill, WA6QYR at 247 Rebel Road

Ridgecrest, CA 93555 or, bburns@ridgenet.net, or phone 760-375-8566. The newsletter is generated about the 15th of the month and put into the mail at least the week prior to the meeting. This is your newsletter. SBMS Newsletter material can be copied as long as SBMS is identified as source.

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